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10/702,200	11/04/2003	Ryoji Kubo	B588-707 (25815.723)	7121

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EXAMINER
CUTLER, ALBERT H

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/702,200	KUBO, RYOJI
	Examiner	**Art Unit**	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16 and 17* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *16 and 17* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This office action is responsive to communication filed on June 11, 2009. Claims

16 and 17 are pending in the application and have been examined by the Examiner.

Information Disclosure Statement

2.   The Information Disclosure Statement filed July 6, 2009 was received and has

been considered by the Examiner.

Continued Examination Under 37 CFR 1.114

3.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June

11, 2009 has been entered.

Response to Arguments

4.   Applicant's arguments filed June 11, 2009 have been fully considered but they

are not persuasive.

5.   Applicant argues that Nakamura is not simply missing the first and second areas

of memory out of the elements of claim 16 as amended, i.e., it lacks more elements of

claim 16. For example, since Nakamura lacks the first and second memory areas, it

automatically fails to teach the control schemes as recited in amended claim 16

discussed above, e.g., the control schemes indicated as (a) and (b), i.e., (a) said image

processing device processes a color space conversion for the first RAW data readout

from said first area in accordance with start of reading the second RAW data from the

image sensing element in the second image sensing operation, and (b) the white

balance integral processing for the second RAW data by said white balance integration

device and the color space conversion for first RAW data by said image processing

device processes are performed in parallel during reading of the second RAW data from

the image sensing element.

6.   The Examiner respectfully disagrees. In response to applicant's arguments

against the references individually, one cannot show nonobviousness by attacking

references individually where the rejections are based on combinations of references.

See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800

F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

7.   As per (a), Nakamura teaches that the image processing device processes a

color space conversion for the first RAW data readout from said first area during "Image

processing 1", "Pc" of figure 8, column 7, lines 24-33. Nakamura teaches the start of

reading the second RAW data from the image sensing element in the second image

sensing operation during period "Pe" of figure 8, column 7, lines 41-44. The Examiner

agrees that these processes of Nakamura are not performed in parallel. However,

Anderson teaches that one buffer in memory is filled with image data (i.e. the reading of

second RAW data from an image sensing element) in parallel with the processing of

previous captured image data output from a second buffer (i.e. image processing for the

first RAW data readout from said first area), column 6, lines 47-50. Anderson teaches

that said image processing includes color space conversion (column 6, lines 19-23).

Therefore, the combination of Nakamura and Anderson teaches said image processing device processes a color space conversion for the first RAW data readout from said first area in accordance with start of reading the second RAW data from the image sensing element in the second image sensing operation.

8.   As per (b), Nakamura teaches the white balance integral processing for the second RAW data by said white balance integration device is performed in accordance with start of reading the second RAW data during period "Pe" of figure 8, column 7, lines 41-44. Nakamura teaches the color space conversion for first RAW data by said image processing device during "Image processing 1", "Pc" of figure 8, column 7, lines 24-33. The Examiner agrees that Nakamura does not teach that these processes are performed in parallel during reading of the second RAW data from the image sensing element. However, Anderson teaches that one buffer in memory is filled with image data (i.e. the reading of second RAW data from an image sensing element) in parallel with the processing of previous captured image data output from a second buffer (i.e. image processing for the first RAW data readout from said first area), column 6, lines 47-50. Anderson teaches that said image processing includes color space conversion (column 6, lines 19-23). Therefore, the combination of Nakamura and Anderson teaches the white balance integral processing for the second RAW data by said white balance integration device and the color space conversion for first RAW data by said image processing device processes are performed in parallel during reading of the second RAW data from the image sensing element.

9.   Applicant argues that referring to Fig. 8 of Nakamura as shown below, it appears that the Examiner tries to equate the "IMAGE PROCESSING 1" (Pc) to the control scheme indicated as (a) above. However, the "EXPOSURE/STORAGE 2" is not an equivalent process to the "reading the second RAW data read from the image sensing element and stored in the second area of the memory," as recited in amended claim 16. For example, the output of the "EXPOSURE/STORAGE 2" process is not stored in a second area of the memory as required by amended claim 16.

10.   The Examiner respectfully disagrees. In the office action mailed March 11, 2009, the Examiner stated (see page 7), "Nakamura et al. further does not explicitly teach that the processing device processes a color space conversion for the first RAW data readout from said first area in accordance with start of reading the second RAW data from the image sensing element." On the contrary, Nakamura teaches that the "Image Processing 1" ("Pc", figure 8) and the reading out of the second RAW data (see "Pe") are not performed in parallel. However, Anderson teaches that one buffer in memory is filled with image data (i.e. the reading of second RAW data from an image sensing element) in parallel with the processing of previous captured image data output from a second buffer (i.e. image processing for the first RAW data readout from said first area), column 6, lines 47-50. Anderson teaches that said image processing includes color space conversion (column 6, lines 19-23). Therefore, the combination of Nakamura and Anderson teaches that the storage of the second RAW data and the processing for first RAW data by said image processing device processes are performed in parallel during reading of the second RAW data from the image sensing element.

11.   Applicant argues that Nakamura does not disclose or suggest that it is limited to display the live view image in a condition that the integral processing for the second RAW data is finished but the color space conversion processing for the first RAW data is not finished and that it is allowed to display the live view image in response to an operation that the color space conversion processing for the first RAW data is finished after the integral processing for the second RAW data is finished, as specifically recited in amended claim 16. Additionally, Applicant argues that Nakamura fails to teach that said while balance calculation device calculates white balance coefficient of the second RAW data after said display device starts to display the live view image.

12.   The Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Anderson teaches that a live view image is always displayed. For instance, during the alternate image storage and processing of input buffers A and B of figure 4B, frames are alternately output from frame buffers A and B, column 6, lines 47-56. Because images are output from a frame buffer to the display, the display time does not rely on any image processing period of time. Therefore, the combination of Nakamura, Anderson and Taniguchi et al. teaches that the display is limited to display the live view image (i.e. the display must display a live view image) in a condition that the integral processing for the second RAW data is finished but the color space conversion processing for the first RAW data is not finished

(the display always displays a live view image, see Anderson above) and that it is allowed to display the live view image (i.e. the live view image is displayed) in response to an operation that the color space conversion processing for the first RAW data is finished after the integral processing for the second RAW data is finished (the display always displays a live view image, see Anderson above), as specifically recited in amended claim 16. An object image is continuously displayed on the display as taught by Anderson, including any time when a white balance coefficient is calculated.

13.   Applicant argues that there is no motivation to modify the reference of combine reference teachings as proposed by the Examiner.

14.   In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Anderson teaches the explicit motivation of improving the display speed of the digital camera and preventing the tearing of the image in the display (column 6, line 65 through column 7, line 3). Taniguchi et al. teaches the explicitly motivation of performing white balance without any erroneous adjustment and adverse influence of a high chromaticity region of the image (column 2, lines 40-50).

15.   Therefore, the rejection is maintained by the Examiner.

Claim Objections

16.   Claim 16 is objected to because of the following informalities: Lack of clarity and

precision.

17.   Claim 16 recites,"said display device is limited to display the live view image

during the integral processing for the second RAW data is finished but the color

space conversion processing for the first RAW data is not finished, said display device

is allowed to display the live view image **in response that the color space conversion**

processing for the first RAW data is finished after the integral processing for the

second RAW data is finished". The above-cited passage is not written in proper

idiomatic English and thus lacks clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

18.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

19.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Nakamura et al. (US 6,963,374) in view of Anderson (US 6,847,388) and Taniguchi et

al. (US 5,619,347).

20.   The Examiner's response to Applicant's arguments, as outlined above, in hereby

incorporated into the rejection of claim 16 by reference.

        Consider claim 16, Nakamura et al. teaches:

An image sensing apparatus ("Digital Camera", figures 1-4, column 2, line 56

through column 4, line 43) comprising:

an image sensing device ("CCD", 303, figure 4) which outputs image data

obtained by an image sensing element as RAW data (column 3, lines 50-58);

a memory ("DRAM", 232, figure 4) which has a first area for temporarily storing

first RAW data obtained in a first image sensing operation of said image sensing device

and for temporarily storing second RAW data obtained in a second image sensing

operation next to the first image sensing operation of said image sensing device (See

figure 7, column 7, lines 10-49. First raw image data is written into the DRAM (232)

over channel 1. During a subsequent image capture operation, this first raw data is

read out of DRAM (232) over channel 2 for image processing, as second image data is

written into the DRAM (232) over channel 1.);

a white balance integration device (211a, figure 6A) which integrates at least one

of the first and second RAW data for a white balance processing (The white balance

integration device (211a) is part of the image signal processor (211, figure 4). The

RAW image data is subjected to white balance processing, and then stored into the

DRAM (232), column 6, lines 21-26.);

an image processing device (211, figure 4) which performs image processing of

the first and second RAW data readout from said memory (The image processing

device (211) performs processing such as color space conversion on the RAW data

readout from memory (232), column 4, lines 8-10, column 6, lines 26-36, column 7, lines

24-33.),

a display device ("EVF", 20, or "LCD", 10, figure 4) which displays a live view image during imaging on the image sensing element (The display acts as a "live view display" (i.e. an object image is displayed during imaging), column 3, lines 16-23.); and

a control device ("main CPU", 21, figure 4) which controls said memory (232), said white balance integration device (211a), said image processing device (211), and said display device (20, 10, column 4, lines 1-27. The main CPU (21) comprises the image processing device (211) which contains the white balance integration device (211a), a bus controller (218) for controlling the memory (232), and a video encoder (213) which supplies analog image signals to the display.),

wherein, said control device (21) controls so that, said image processing device (211) processes a color space conversion for the first RAW data readout from said memory (232) in accordance with start of exposure/storage of the second RAW data from the image sensing element (303) in the second image sensing operation (See figure 8, column 7, lines 24-33. A frame of raw data obtained by an immediately preceding image (i.e. first image data) is read out of DRAM (232) and subjected to color space conversion while second image data is obtained through exposure and storage of the CCD.), and said display device ("LCD", 10) displays the object image (See "Live View Display" on the right side of figure 8.) after the color space conversion processing for the first RAW data (See "Pc", figure 8) and the integral processing (See Readout 2, "Pe", figure 8) for the second RAW data (See column 7, lines 24-49. The LCD exhibits a "Live View Display" after the color space conversion "Pc" and integral processing "Pe".).

However, Nakamura et al. does not explicitly teach that said memory (232) has a second area for storing the second RAW image data. Nakamura et al. further does not explicitly teach that the processing device processes a color space conversion for the first RAW data readout from said first area in accordance with start of reading the second RAW data from the image sensing element. Nakamura et al. does not explicitly teach that the display device is limited to display the live view image in a condition that the integral processing for the second RAW data is finished but the color space conversion processing for the first RAW data is not finished and that it is allowed to display the live view image in response to an operation that the color space conversion processing for the first RAW data is finished after the integral processing for the second RAW data is finished

Anderson is similar to Nakamura et al. in that Anderson teaches of a camera (figures 1-3) with a memory (figure 4a). Anderson also similarly teaches of reading out raw image data from an image sensor (114, figure 1, column 5, lines 59-64), storing the data in a memory (530, column 5, line 59 through column 6, line 3), and subsequently performing color space conversion on the image data (column 8, line 59 through column 9, line 7).

However, in addition to Nakamura et al., Anderson teaches that said memory (figures 4a and 4b) has a second area (Input buffer, 2, B) for storing the second RAW image data, each of the first and second areas of memory stores the RAW data from the first and second operations alternately, that said memory stores the third RAW data in the first area in which the color space conversion of the first RAW data by said

image processing device is finished, and that the processing device processes a color

space conversion for the first RAW data readout from said first area in accordance with

start of reading the second RAW data from the image sensing element (See figure 4a,

column 4, line 59 through column 6, line 3, column 6, lines 38-56, column 8, line 59

through column 9, line 8. Anderson teaches, "Referring again to FIG. 4B, the ping-

pong buffers are utilized during live view mode as follows. While input buffer A is filled

with image data, the data from input buffer B is processed and transmitted to frame

buffer B. At the same time, previously processed data in frame buffer A is output to the

LCD screen 402 for display. While input buffer B is filled with image data, the data

from input buffer A is processed and transmitted to frame buffer A. At the same time,

previously processed data in frame buffer B is output to the LCD screen 402 for

display." As one buffer (i.e. the second area) is filled with raw image data (i.e. the start

of reading of the second RAW data from the image sensing element), the other buffer

(i.e. the first area) is emptied and processed (i.e. first RAW data is readout from the

first area), which processing involves color space conversion (See 612, figure 7,

column 8, line 59 through column 9, line 8). Anderson teaches that the input buffers A

and B alternate between an input cycle and a processing cycle, column 6, lines 8-10.

Therefore, buffer A is an input buffer during a first phase, an output buffer during a

second phase when second RAW data is written into buffer B, and again an input

buffer during a third phase when third RAW data is output from the sensor an into

memory. Thus, the third image data is stored in the same area (i.e. buffer A) as the

first image data during the third phase, after the first image data is processed during

the second phase.).

Anderson teaches that a live view image is always displayed. For instance,

during the alternate image storage and processing of input buffers A and B of figure

4B, frames are alternately output from frame buffers A and B, column 6, lines 47-56.

Because images are output from a frame buffer to the display, the display time does

not rely on any image processing period of time. Therefore, the combination of

Nakamura and Anderson teaches that the display is limited to display the live view

image (i.e. the display must display a live view image) in a condition that the integral

processing for the second RAW data is finished but the color space conversion

processing for the first RAW data is not finished (the display always displays a live view

image, see Anderson above) and that it is allowed to display the live view image (i.e.

the live view image is displayed) in response to an operation that the color space

conversion processing for the first RAW data is finished after the integral processing for

the second RAW data is finished (the display always displays a live view image, see

Anderson above).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to use ping-pong buffers as taught by Anderson in the

camera taught by Nakamura et al. to read out raw image data from the image sensor

concurrent with the processing color space conversion of previous image data, for the

benefit of improving the display speed of the digital camera and preventing the tearing

of the image on the display (Anderson, column 5, line 65 through column 6, line 3.).

Nakamura et al. alone does not explicitly teach that the integral processing for the second RAW data by said white balance integration device and the color space conversion for first RAW data by said image processing device processes are performed in parallel during reading of the second RAW data from the image sensing element. However, because the white balance integration taught by Nakamura et al. is performed during the raw data writing ("Pe"), and thus in parallel with the readout of the second image data (see figure 8, column 7, lines 41-49), the combination of Nakamura et al. and Anderson teaches that that integral processing of the second image data and the color space conversion of the first image data are performed in parallel. This is because Anderson modifies Nakamura et al. such that the image processing of the first image data (which includes color space conversion) readout from the first area of memory takes place concurrently with the readout of second RAW image data from the image sensor (which includes integration) and into the second area of memory, as discussed above.

However, the combination of Nakamura et al. and Anderson does not explicitly teach a white balance calculation device which calculates a white balance coefficient on the basis of the integration result by the white balance calculation, or that the image processing is performed in accordance with the white balance coefficient calculated by said white balance calculation device.

Taniguchi et al. is similar to Nakamura et al. in that Taniguchi et al. teaches performing white balance (column 1, lines 9-15) on image data stored in a picture

memory (12, figure 1, column 9, lines 42-60). Taniguchi et al. also similarly teaches of a

white balance integration device (15, 16, figure 1, column 9, line 63 through column 10,

line 8).

However, in addition to the teachings of Nakamura et al. and Anderson,

Taniguchi et al. teaches of a white balance calculation device ("white balance coefficient

calculating unit", 22, figure 1) which calculates a white balance coefficient on the basis

of the integration result by the white balance calculation (See figure 1, column 10, lines

45-60. The white balance calculation device (22) calculates a white balance coefficient

according to a plurality of factors determined in units 17-21 of figure 1, based upon the

white balance integration of the white balance integration device (15,16). See also

column 10, lines 6-44.), and that the image processing is performed in accordance with

the white balance coefficient calculated by said white balance calculation device (See

14, figure 1, column 9, lines 50-60, column 10, lines 56-60. Image processing is

performed by the white balance adjusting unit (14) based upon the white balance

coefficient calculated by the white balance coefficient calculating unit (22).).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to have the image processing device taught by the

combination of Nakamura et al. and Anderson comprise a white balance calculation

device and perform white balance processing based upon a calculated white balance

coefficient as taught by Taniguchi et al. for the benefit of performing a sufficient degree

of white balance adjustment appropriate to a colored picture without any erroneous

adjustment or adverse influence due to a high chromaticity region of the colored picture

(Taniguchi et al., column 2, lines 40-50).

The combination of Nakamura et al., Anderson, and Taniguchi et al. teaches that

said white balance calculation device (taught by Taniguchi et al.) calculates the white

balance coefficient for the second RAW data (see above rationale) after said display

device starts to display the live view image. Anderson teaches that parallel processing

is performed by utilizing two buffers, column 6, lines 47-56. Anderson teaches that the

image data from one buffer is displayed on the LCD (402) as the image data from the

other buffer is processed, column 6, lines 47-56. Therefore, an object image is

continuously displayed on the display, including any time when a white balance

coefficient is being calculated.

21.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Nakamura et al. (US 6,963,374) in view of Anderson (US 6,847,388) and Taniguchi et

al. (US 5,619,347) as applied to claim 16 above, and further in view of Sasaki (US

6,961,085).

Consider claim 17, and as applied to claim 16 above, the combination of

Nakamura et al., Anderson, and Taniguchi et al. teaches that said display device

displays the object image after said white balance calculation device calculates the

white balance coefficient (See claim 16 rationale. Anderson teaches of a continuous

display.). However, the combination of Nakamura et al., Anderson, and Taniguchi et al.

does not explicitly teach a defect correction device.

Sasaki is similar to Nakamura et al. in that image data is collected from the

image sensor (12, figure 1), preliminary processing is performed to yield first image data

(see step 41, figure 7) which is written into a buffer memory (26a, figure 7). Sasaki also

similarly teaches that the first image data is read from the buffer memory (step 42,

figure 7) for additional processing (see column 10, lines 1-57).

However, in addition to the combined teachings of Nakamura et al., Anderson,

and Taniguchi et al., Sasaki teaches that the apparatus further comprises a defect

correction device which corrects a defective pixel portion of image data when the image

sensing element has a defective pixel (See column 10, lines 21-57. Sasaki teaches that

the locations of defective pixels are stored in memory, and when reading the data

output from the buffer (26a), the defective pixels are corrected.), and that a control

device controls said defect correction device in such a way that said defect correction

device corrects a defective pixel portion of the image data (See column 10, lines 29-31,

lines 37-41.).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to have a defect correction device for correcting defective

pixels as taught by Sasaki correct defective pixels in the image processing device

during the display of the object image as taught by the combination of Nakamura et al.,

Anderson and Taniguchi et al. for the benefit of keeping the influence of a defective

pixel to a minimum and preserving a high-definition image (Sasaki, column 3, lines 1-5,

lines 12-16).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ALBERT H. CUTLER whose telephone number is

(571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

/Sinh Tran/
Supervisory Patent Examiner, Art Unit 2622